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$\left[\frac{139}{2}\right]^2=121x^2+139\times11x+\left[\frac{139}{2}\right]^2$. Extract square root and have,

$x^2+\frac{139}{2}=11x+\frac{139}{2}$ or $x^2=11x$.

PROBLEMS.

3. Proposed by Professor H. A. WOOD, A. M., Hoboken, New Jersey.

If $x^6-y^6=665$, and $x^3y+xy^3=78$, find x and y.

4. Proposed by L. E. PRATT, Tecumseh, Nebraska.

If Σm, Σm^3, Σm^5, ... Σm^{2n-1} are the sums of the 1st, 3rd, 5th,...... (2n—1)th powers of the first m natural numbers, prove that $n\Sigma m^{2n-1}+\frac{n(n-1)(n-2)}{\underline{|3}}\Sigma m^{2n-3}+\frac{n(n-1)(n-2)(n-3)(n-4)}{\underline{|5}}\Sigma m^{2n-5}+\ldots\ldots=2^{n-1}\Sigma^n_m$.

5. Proposed by WILLIAM E. MAY, Jonesboro, Tennessee.

A, B, and C went to market, each with 10, 30, and 50 eggs, respectively. On their way to market, they agreed to sell their eggs at the same price per dozen so as to realize an equal integral number of cents. How much did they receive?

6. Proposed by L. E. PRATT, Tecumseh, Nebraska.

A vessel is to be filled with water by two pipes. The first pipe is kept open during m-nth of the time which the second would take to fill the vessel; then the first pipe is closed and the second is opened. If the two pipes had kept open together, the vessel would have been filled t hours sooner, and the first pipe would have brought in p-qth of the quantity of water which the second pipe really brought in. How long would it take each pipe alone to fill the vessel?

7. Proposed by O. S. KIBLER, Superintendent of Schools, West Middleburg, Logan county, Ohio.

A's age equals B's age plus the cube root of C's age; B's age equals C's age plus the cube root of A's age plus 14 years; and, C's age equals the cube root of A's age plus the square root of B's age. What is the age of each?

8. Proposed by H. M. CASH, Salesville, Ohio.

The longer side BC of a field in the form of a parallelogram is a (78) rods; the sum of its shorter side AB, and greater diagonal AC is b (114) rods; the distance from B at right angles with AB to a tree standing on AC, is c (32) rods. Find the area of the field, and the distance from the tree to the corners A, C, and D.

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GEOMETRY.

Conducted by B. F. FINKEL, Kidder, Missouri. All contributions to this department should be sent to him.

SOLUTIONS TO PROBLEMS.

1. Proposed by B. F. FINKEL, Professor of Mathematics in Kidder Institute, Kidder, Missouri,